

12. (Amended) The method of claim 1, wherein the step of eliminating said adhered substances includes electropolishing said surface with an electrolyte solution.

17. (Amended) The method of claim 1, wherein said step of eliminating said adhered substances includes washing said surface.

18. (Amended) The method of claim 1, wherein said substances adhered to said surface of said substrate contain titanium oxides that cause blackening of the surface.

Please add claim 40:

40. (New) The method of claim 1, wherein said ornament is a timepiece.

REMARKS

Claims 1-24 and 40 are pending in this application; claims 1-24 have been rejected and claims 1, 2, 4, 7, 12, 17 and 18 have been amended. New claim 40, which provides that the ornament can be a "timepiece", finds support throughout the application as filed. For instance, the specification states at page 1, lines 18-20, that the surface of the substrate can be that of watches and clocks. Claim 1 is independent.

The Objection to the Disclosure

The title of the application was objected to as being insufficiently descriptive of the invention as presently claimed. The Examiner also asserted that the surface treatment is performed on a titanium surface but that this is not recited.

In the interests of expediting prosecution, the title of this application has been changed to --METHOD OF TREATING A SURFACE OF A SUBSTRATE CONTAINING TITANIUM FOR AN ORNAMENT--.

Claim 1 has been revised to include the step of providing the surface containing titanium.

For all the foregoing reasons, favorable reconsideration and withdrawal of this objection are respectfully requested.

**The Rejection Under
35 U.S.C. § 112, ¶ 2**

Claims 1-24 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the Applicant's invention. In particular, the Examiner indicated that a number of features in these claims were vague and indefinite, or lacked antecedent basis, and requested clarification.

Claims 1-24 have been carefully reviewed and, where appropriate, have been revised to attend to the points noted by the Examiner. By way of example, claims 1, 2, 4, 7, 12, 17 and 18 have been amended to correct inadvertent typographical errors and to clarify the nature of the present invention.

Before addressing the specific grounds of rejection, Applicant wishes to point out that the Court of Appeals for the Federal Circuit holds that 35 U.S.C. § 112, § 2, only requires Applicant to particularly point out and distinctly claim the invention:

The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. [Citation omitted] If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more.

Miles Laboratories, Inc. v. Shandon Inc., 997 F.2d 870, 875, 23 USPQ2d 1123, 1126 (Fed. Cir. 1993) (emphasis added), cert. denied, 62 USLW 3492 (1994); Credle v. Bond, 25 F.3d 1566, 1576, 30 USPQ2d 1911 (Fed. Cir. 1994)

Applicant submits that the pending claims fully comply with § 112, ¶ 2. Here, those of ordinary skill in the art would find the claims to clearly demarcate the present invention.

Claim 1 provides that the method of surface treatment containing titanium involves an ornament. The phrase "removing surface adhesion substances" has been changed to --eliminating substances adhered to the surface of the substrate--. Claim 1 also has been amended to provide that the adhered substances are foreign materials. Support for these amendments can be found throughout the disclosure, for example, at page 7, lines 13-18, which describes the "elimination" of surface adhesion substances and characterizes these substances as foreign materials or contaminants which adhere to the surface of the substrate. Claim 1 also has been amended to more particularly point out that the forming of a transparent protective layer occurs after the elimination of the adhered substances. Support for this amendment can be found at page 22, lines 7-10.

Applicant respectfully traverses the Examiner's rejection based upon the use of the term "forming"; the meaning of the term "forming" would be clear to one skilled in the art in view of their general knowledge and from the specification. For instance, at page 22, lines 7-21, the specification describes the formation of the protective layer on the surface of the substrate after elimination of substances adhered to the substrate.

Claim 2 has been amended to more clearly point out that the adhered substances may be the result of machine "working". See page 37, lines 13-19.

Claims 12 and 17 have been amended in order to conform with revised claim 1.

For all the foregoing reasons, favorable reconsideration and withdrawal of this rejection are earnestly solicited.

**The Rejection Under
35 U.S.C. § 112, ¶ 1**

Claims 1-24 were rejected under 35 U.S.C. § 112, first paragraph, as lacking enabling support in the disclosure. More specifically, the claims were rejected on grounds there was no enabling support for the machining step to form a roughened surface resulting in foreign materials and/or an oxide layer (which the Examiner indicated was not found in the claim). Additionally, claims 1-24 were rejected on grounds the disclosure did not provide enabling support for titanium surfaces other than watches. Applicant respectfully traverses these rejections and submits the following arguments in support thereof.

With regard to the portion of this rejection contending there was no enabling support for the machining step to form a roughened surface resulting in foreign materials and/or an oxide layer, Applicant respectfully submits that this rejection is not well-taken. The case cited in this rejection, In re Mayhew, 527 F.2d 1229 (CCPA 1976), does not support the asserted ground of rejection.

Mayhew involved a patent application drawn to a process for the continuous production of coated steel strips. The application in question disclosed that a cooling zone was provided in a spelter bath where the steel strip exits. The issue before the Court was whether the specification therefore could support claims which did not recite the cooling bath. The Court, noting the specification stated that the invention required that cooling bath, held that claims not reciting the cooling bath lacked enabling support in the disclosure.

Thus, Mayhew only stands for the proposition that where the specification teaches a step is a necessary part of the invention (i.e., the invention requires steps A, B and C), a claim not having that step (i.e., C), lacks enabling support.

Contrary to the Examiner's position, the specification does not state that a machining step to form a roughened surface resulting in foreign materials and/or an oxide layer is critical or essential to the practice of the invention. Rather, as described at pages 1-3, the machining which produces the impurities and deposits is merely the source of contamination, and nowhere is it said that such machining is a critical part of the invention. Materials contaminated in other ways also could be treated by this invention.

The present situation is readily distinguishable from and so is not controlled by Mayhew, where the specification taught that the feature omitted from the claims was essential. Accordingly, this rejection is not well-taken.

Applicant's invention is directed to a method for treating the surface of a titanium workpiece which has impurities thereon. Those skilled in the art would understand from the specification at pages 1-3 that the machining which forms impurities on a workpiece is merely the source of the problem that the invention solves. The claimed invention is not concerned with the manner in which the impurities are applied, since that is an "upstream" event.¹ As such, it would be improper to provide for the treatment of the workpiece to generate the impurities.

Insofar as claims 1-24 were rejected on grounds the disclosure does not provide enabling support for processing of items other than watch cases such as cutting tools, Applicant

¹ A method for cleaning a person's hands would not include the step of dirtying the hands so as to require cleaning. Nor would a method of treating a disease include the step of infecting the patient.

respectfully submits that one skilled in the art would from their own general knowledge appreciate that the present invention could be used to process such other items.

In fact, by relying in the rejection under 35 U.S.C. § 103 upon references which speak generally of workpieces, (see U.S. patent nos. 3,650,861, 4,588,480 and 4,938,850), the Examiner has implicitly **admitted** that those skilled in the art would realize methods for processing workpieces could be applied to a range of objects. That is, given the rejection under § 103 relies upon references which are directed generally to the processing of titanium workpieces, and not just to the processing of titanium timepieces, the Examiner has conceded that those skilled in the art would understand titanium processing techniques could be used with watches.

Moreover, one of the other references relied upon in the § 103 rejection, U.S. patent no. 5,603,338 to Beaty, describes the processing of titanium body implants.

It is respectfully submitted that by applying such references the Examiner has **admitted** that it would be known to those skilled that titanium processing could be used with a variety of objects, and is **estopped** from asserting that the present disclosure need specifically describe the processing of objects other than watches

Since in assessing whether a claim finds enabling support in the disclosure it is necessary to consider the general knowledge of those skilled in the art, and here those of such skill would appreciate that titanium processing methods could be employed with a range of different workpieces, there is no need for the specification to explicitly discuss such use of the claimed processes.

For all the foregoing reasons, favorable reconsideration and withdrawal of these rejections is respectfully requested.

**The Rejection Under
35 U.S.C. § 103**

Claims 1-24 have been rejected under 35 U.S.C. 103(a) as being unpatentable over what the Examiner characterized as Applicant's submitted state of the art in the specification on page 3 in combination with either U.S. Patent No. 4,588,480 to Thoma, No. 4,938,850 to Rothschild et al., No. 5,603,338 to Beaty, No. 3,650,861 to Angell or No. 4,525,250 to Fahrmbacher-Lutz et al. Applicant respectfully traverses this rejection and submits the following arguments in support thereof.

Applicant's invention, as described in claim 1, concerns a method of treating a surface of a substrate containing titanium for an ornament. This is accomplished by providing the surface containing titanium, eliminating substances adhering to the surface of the substrate from the surface, those adhered substances being foreign materials, and forming a transparent protective layer on the surface after removing the adhered substances.

The Examiner argues that Applicant's submitted state of the art in the specification teaches that watches made of aluminum or aluminum alloys covered with a transparent protective film are known. The Examiner states that the specification further teaches that titanium or titanium alloys are known to be utilized in forming watches, however, oxidation of the titanium materials is a problem. The Examiner further states that applicant's state of the art fails to teach removing adhesion substances from the titanium surfaces prior to applying transparent protective film. The Examiner goes on to state that Thoma, Rothschild, Beaty, Angell or Fahrmbacher-Lutz all individually teach the importance of removing "native oxides, i.e., titanium oxides" an impurity on the surface of titanium prior to subsequent plating processes.

The Examiner acknowledges that the references teach a metal plating step as opposed to a transparent protective layer, i.e., glass. The references are relied upon for teaching the known pre-treatment and "steps" to form a "prepared clean titanium surface" prior to any subsequent coating. However, it is the Examiner's position that one skilled in the art would recognize the problems associated with titanium oxide and other impurities would also effect not only metal coating but other coatings as well and therefore, the Examiner believes that at the time that the invention was made, one skilled in the art would have had a reasonable expectation of achieving similar success regardless of the type of subsequent coating. The Examiner further states with respect to the claims' "pre-treatment steps" as well as the compositional makeup of the glass layer, that it is the Examiner's position that these are all "result effective" variables which can be optimized by one skilled in the art. Therefore, the Examiner is of the opinion that one skilled in the art would have had a reasonable expectation of achieving similar success regardless of which conventional technique was utilized without the showing of unexpected results. Applicant respectfully traverses this rejection.

Applicant respectfully traverses this rejection on grounds the Examiner has not provided a proper justification for the combination of cited references. The Examiner maintains that by combining the teachings these references, one of ordinary skill in the art at the time the invention was made would be led to practice the claimed invention. Applicant firmly believes that this opinion is based on hindsight with knowledge of the invention as disclosed in the application. There is nothing in any of the cited references that indicates how to combine the teachings of the references cited to arrive at method of treating the surface of a substrate containing titanium for an ornament by eliminating substances adhering to the substrate's

surface, and forming a transparent protective layer on the surface after removing the adhered substances, without knowledge of the invention as disclosed in the application.

In the Office Action a mosaic is formed using references cited in order to reach a basis for rejecting the claims under 35 U.S.C. §103 and in doing so the person of ordinary skill is ascribed an extensive and, in Applicant's opinion, unbelievable ability to deduce the process of the present invention. In doing so, the claimed invention is used as the impetus to make the combination of references and, as such, is essentially cited as a reference against itself as if it had preceded itself in time. As stated in In re Sernaker, 702 F.2d 989 (Fed. Cir. 1983), "prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings."

In order to be used in a §103(a) rejection, the references, reviewed by themselves and not in retrospect, must suggest doing what inventors have done. Applicant respectfully submits that no such suggestions have been shown.

In addition, Applicant's invention is directed to a method of treating a surface of a substrate containing titanium for an ornament. The step of eliminating substances adhered to the surface of the substrate prior to the step of forming or constructing the protective layer is not taught by any of the references, whether taken singly or in combination.

It is an object of applicant's invention to provide a method of surface treatment for making titanium or titanium alloy surfaces more durable and scratch, fingerprint, corrosion and abrasion resistant. Applicant's invention is uniquely suited for use with titanium and titanium alloys because of the intrinsic properties of titanium. For instance, as pointed out in the specification at page 2, lines 10-17, titanium and alloys oxidize easily. Until now, components constructed from these materials often have an oxide layer (color change layer) formed on their

surface, which can blacken the surface and deteriorate the quality of the appearance of the ornament. Therefore, Applicant's invention provides an improvement in the art and unexpected results when used specifically with titanium and titanium alloys, and it is respectfully submitted that it would not have been obvious to one of skill in the art to apply the "pre-treatment" methods taught by the Thoma, Rothschild, Beaty, Angell or Fahrmbacher-Lutz references to a titanium or titanium alloy ornament. Nor would it have been obvious to the apply applicant's protective layer subsequent to such treatment.

The remaining rejected claims, claims 2-24 and 40, all ultimately depend from and so incorporate by reference all the features of claim 1, including those features just shown to avoid the cited art. Claims 2-24 and 40 therefore avoid the cited art at least for the reasons which have been given with regard to base claim 1.

For all the foregoing reasons, favorable reconsideration and withdrawal of this rejection are respectfully requested.

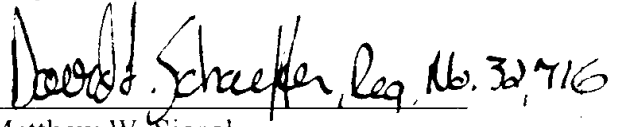
CONCLUSION

Applicant respectfully submits that all outstanding rejections and objections have been addressed and are now either overcome or moot. Applicant further submits that all claims pending in this application are patentable over the prior art. Reconsideration and withdrawal of those rejections and objections is respectfully requested.

Applicant has made a diligent effort to place this application in condition for allowance and notice to the effect that claims 1-24 and 40 are in condition for allowance is earnestly solicited. Should, however, the Examiner deem otherwise, the Examiner is respectfully

requested to telephone the undersigned attorney at the number listed below to resolve any outstanding issues prior to issuing a further Office Action.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES

Claims:

1. (Amended) A method of treating a surface of a substrate containing titanium for an ornament, comprising the steps of:
providing the surface containing titanium;
eliminating [removing surface adhesion] substances adhered to said surface of
said substrate from said surface, wherein said adhered substances are foreign materials, and
forming a transparent protective layer on said surface after removing said adhered
substances.

2. (Amended) The method of claim 1 wherein said surface [include surface adhesion] includes adhered substances which result from the substrate having been subjected to machine [works] working.

4. (Amended) The method of claim 1, wherein the step of forming said transparent protective layer [includes] comprises the steps of:
adhering a glass coating liquid on said surface from which [surface adhesion] substances adhered to said surface of said substrate have been removed, and
drying the surface.

7. (Amended) The method of claim 1, wherein the step of removing [surface adhesions] substances adhered to said surface of said substrate includes chemical polishing said surface by immersing said surface in an etching solution.

12. (Amended) The method of claim 1, wherein the step of [removing surface adhesion] eliminating said adhered substances includes electropolishing said surface with an electrolyte solution.

17. (Amended) The method of claim 1, wherein said step of [removing said first adhesion] eliminating said adhered substances includes washing said surface.

18. (Amended) The method of claim 1, wherein said [surface adhesion] substances adhered to said surface of said substrate contain titanium oxides that cause blackening of the surface.